Los Alamos honors four for science leadership, research

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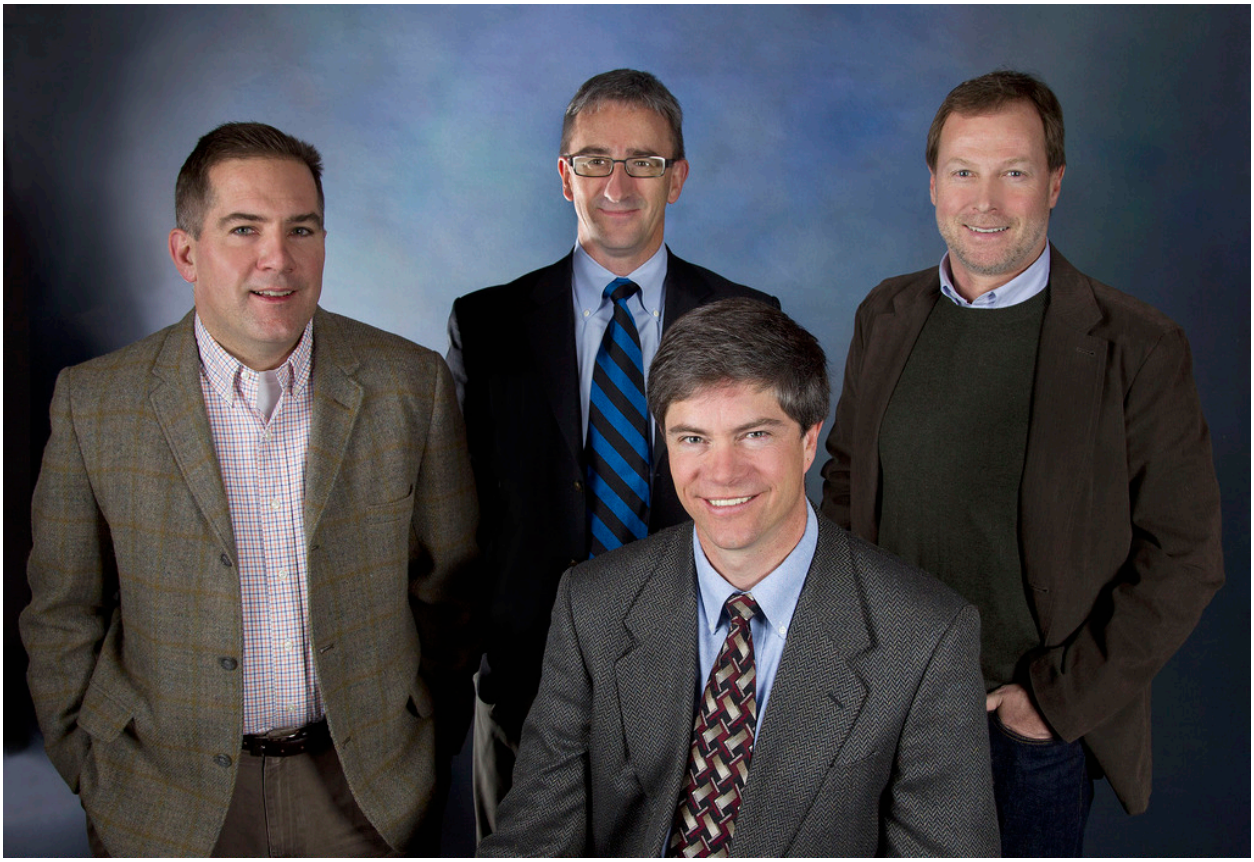

Stars in hydrogen storage, carbon nanotube spectroscopy, space weather and weapons physics noted for 2011 achievements

LOS ALAMOS, New Mexico, January 30, 2012—Achievements in scientific research and leadership are being honored at Los Alamos National Laboratory this week.

Laboratory Director Charles McMillan and the Laboratory's Fellows organization have awarded the 2011 Fellows Prize for Leadership in Science or Engineering to scientists John Gordon of LANL's Inorganic Isotope & Actinide Chemistry group and Geoffrey Reeves of the Lab's Space Science & Applications group.

"This year’s Fellows Prize winners embody the excellence of the science that is so vital to completing our national security missions," McMillan said. "I congratulate each of the four winners and salute their creativity and innovation."

The 2011 Fellows Prize for Research goes to Stephen Doorn of the Center for Integrated Nanotechnologies and David Jablonski of the XTD Primary Physics group.

The following is a summary of the awardees' accomplishments.

John Gordon led a team working on chemical energy storage and release that helped achieve national and international recognition for the LANL and PNNL-led DOE Chemical Hydrogen Storage Center of Excellence. In particular, Gordon’s team as well as colleagues from LANL’s MPA-Division, the University of Alabama, UC Davis and the Dow Chemical Company, worked on solutions to the challenging problem of regenerating ammonia borane from spent, dehydrogenated fuel materials.

Gordon formed and is currently leading a team that focuses on the conversion of carbohydrates into much higher energy density transportation fuels. He and his colleagues are also working on a number of problems related to generating non-petroleum based feedstocks from renewable resources.

Gordon has built an important Laboratory capability in chemical energy conversion and storage by recruiting and mentoring excellent young postdoctoral fellows and staff. In addition to his scientific leadership in chemistry, Gordon has served the Laboratory and the broader scientific community in a number of important capacities including an assignment to the Department of Energy’s Office of Basic Energy Sciences and serving as leader of Inorganic, Isotope, and Actinide Chemistry group at LANL.

Geoffrey Reeves has been the prime architect and organizer of the Laboratory’s growing effort in magnetospheric physics, and he has been a leader in the development of space weather research as a key element of the Laboratory’s threat reduction mission. He recognized that such a capability could make major contributions not only to the Laboratory’s satellite nuclear test detection program but also to the national Space Weather Program and Department of Defense-sponsored national security applications such as Space Situational Awareness.

Over the past decade, Reeves has formed a team of highly capable scientists with the skills required to attack the multifaceted problem of modeling, understanding and predicting the radiation environment of Earth’s magnetosphere. His vision has evolved into the DREAM (Dynamic Radiation Environment Assimilative Model) concept to develop a model of the radiation hazards associated with a high-altitude nuclear explosion. Under Reeves’s guidance, the DREAM team has managed well to balance forefront basic space research with programmatic deliverables. The DREAM team is now recognized by the scientific community as a significant force in the worldwide effort to understand the space environment.

Fellows Prize for Research: Doorn and Jablonski

Stephen Doorn is an intellectual leader in carbon nanotube spectroscopy and is best known in the nanotube community for his groundbreaking advances in Raman spectroscopy of nanotubes, with many examples of “first-ever” types of experiments. He has distinguished himself with numerous scientific accomplishments in the area of spectroscopic studies of carbon nanomaterials, particularly single-walled carbon nanotubes.

Doorn has also developed important materials chemistry to help separate carbon nanotube mixtures and to integrate carbon nanotubes into composite materials. He has published 69 papers with more than 1,600 citations since 2001. Although the focus of Doorn’s contributions is the spectroscopy of carbon nanomaterials, he has made many significant contributions to other areas of nanoscience and nanotechnology. In particular, he has a substantial research portfolio and publication record in the area of plasmonic nanomaterials as surface-enhanced Raman scattering tags and substrates.

David Jablonski is recognized for his significant contribution to the 2010 Level-1 Energy Balance Milepost, resolving a 35-year problem in weapons physics that limited predictive capability. Jablonski performed a careful study of energy partition using Advanced Strategic Computing (ASC) and legacy codes; he isolated and highlighted the contributing factors to this problem and showed how higher fidelity in physical models and mesh resolution achievable with the ASC codes mitigated the problem.

In the process of this five-year Milepost work, Jablonski made the ASC code more useful for the weapons research community, pioneering how to use it efficiently and testing various options, and formulated and coded some physical models himself. Jablonski's approach to using this code has become the standard for the weapons community at Los Alamos.